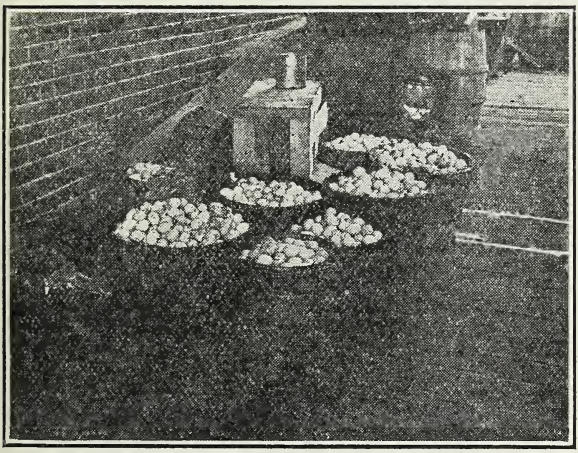
Points for Egg Buyers

WHAT TO SELL
WHAT TO BUY
HOW TO CANDLE
EGG-CANDLING DEVICES



United States Department of Agriculture
Department Circular 25

Contribution from the Bureau of Chemistry
Carl L. Alsberg, Chief

Washington, D. C. 1919

BETTER EGGS BRING MORE MONEY

TO EGG PRODUCERS:

Do you know that your eggs will be worth more money if you—

1. Produce *infertile* eggs by removing the roosters from the flock in the summer time?
2. Provide clean nests and keep eggs clean?
3. Do not wash eggs?
4. Gather the eggs twice daily during the summer, to prevent them from being heated by the hen?
5. Keep them in a cool, dry place, away from flies?
6. Market them at least twice each week?
7. Insist that they be bought on a quality graded basis?

WHY EGGS SHOULD BE CANDLED

1. Candling provides a fixed standard for trading by doing away with guess work.
2. It makes possible a fair price to the careful producer of good eggs.
3. It shows who is responsible for the bad eggs, and who wastes food.
4. It leads to a general improvement in quality.
5. It conforms to law.
6. It saves freight charges, transportation space, and case material, by eliminating the handling of worthless products.

EVERY EGG YOU SHIP OR SELL MUST BE FIT FOR HUMAN FOOD

THE HEN DELIVERS A GOOD EGG—DO YOU?

TO EGG BUYERS AND SHIPPERS:

Do you realize that your profits will be greater and your products more uniform if you—

1. Buy eggs on a quality graded basis?
2. Candle carefully?
3. Pack carefully in new cases with new fillers?
4. Put in a chilled room?
5. Handle carefully to avoid breakage?
6. Ship often to prevent staleness?
7. Load properly to prevent damage?

EGGS WHICH CANNOT BE SOLD OR SHIPPED IN INTERSTATE COMMERCE

1. Black rots.
2. Mixed rots, white rots or addled eggs.
3. Blood rings.
4. Stuck yolks.
5. Moldy eggs.
6. Eggs with bloody whites.
7. Eggs with chickens in them.

Or any other egg that is unfit for food.

EGGS WHICH SHOULD BE SOLD NEAR BY

1. Large hatch spots.
2. Heavily shrunken eggs.
3. Settled yolks.
4. Cracked eggs.
5. Leaking eggs.

PAY A PREMIUM FOR GOOD EGGS

HOW TO CANDLE EGGS

It is necessary to rotate an egg before the candle if one is to obtain an accurate knowledge of its condition. By tilting at various angles, the location and size of the air space can be seen, and very often the position of the yolk. But the quality of the egg is very largely determined by the ease with which the yolk moves and the direction of its motion. The operator, therefore:

1. Grasps the pointed end of the egg with the tips of the fingers.
2. Holding the blunt end uppermost, places the egg closely against the opening, or spout, of the candle.
3. Gives the egg a quick turn to the right or left, watching the movement of the yolk.

If the egg is perfectly fresh it may be difficult to find the yolk at first glance, but as the egg is turned a glimpse of it will be obtained.

EGGS BEFORE THE CANDLE

A good, fresh egg should have a small air space. The yolk should not be very distinct. There should be no black spots or rings. Sometimes the eggshell has fine cracks in it. This is commonly known as a "check" egg, and should not be shipped with first quality eggs. It spoils very quickly.

Blood rings are partially incubated eggs, which show a distinct ring of blood on the yolk. They are unfit for food and should be rejected.

Cause: A fertile egg in which the development of the germ has proceeded until blood

has formed and the embryo has died. Ring formation is not present while the embryo is alive, although blood spots or veins may show.

Moldy eggs have black spots that show only before the candle. They are unfit for food.

Cause: Field nests or wet nests, holding eggs in a damp place, or washing them. Dampness allows mold spores to enter the pores of the shell and grow inside. Mold can also enter through cracks in the shell.

Black rots look more or less black before the candle, and are unfit for food.

Cause: Dead chick, accompanied by bacterial decomposition, or extensive growth of mold and bacteria inside of the shell.

Mixed rots, white rots, or addled eggs when turned before the candle show the yolk more or less mixed with the white. They are unfit for food.

Cause: Bacterial decomposition usually following advanced staleness.

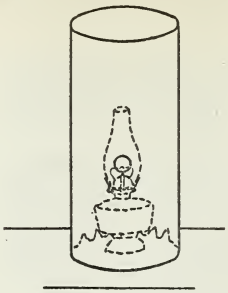
Stuck yolk eggs have yolks apparently stuck to the shell. They are unfit for food.

Cause: In hot weather, when fertile eggs are kept without turning, the yolk may rise through the white and become attached to the shell membrane. In cool weather the yolk may settle in the shell and become fastened to the shell membrane.

Heated eggs before the candle will show dark, heavy yolks, easily movable and with a distinct reddish glow.

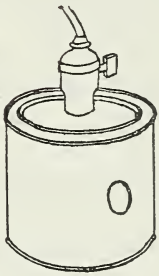
Cause: Egg is fertile and has been exposed to temperatures which start chick development. If temperature is high enough and sufficient time elapses, development will continue until the embryo and blood form.

EGG-CANDLING DEVICES



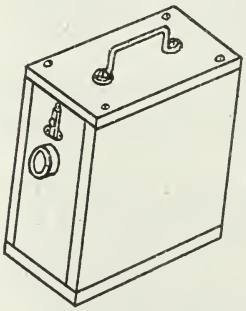
Stovepipe Candle

A piece of stovepipe with 1¼-inch hole opposite light flame. Line the back part of the pipe with a piece of bright tin.



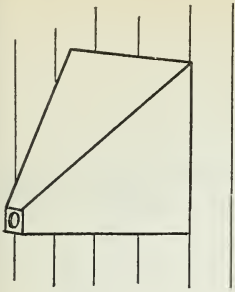
Tin Can Candle

A removable-top can big enough to take an incandescent lamp with 1¼-inch hole opposite light filament. Improved by addition of a spout, 1 inch long, 2 inches wide at can, and 1¼ inches wide at egg hole, as shown on "Food Research Laboratory" candle.



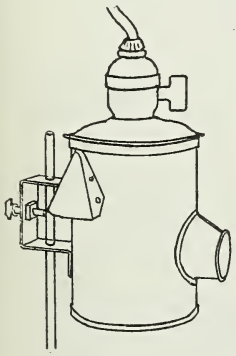
Flash-light Candle

This is portable, durable, and efficient. To make it follow instructions on pages 8 to 11.



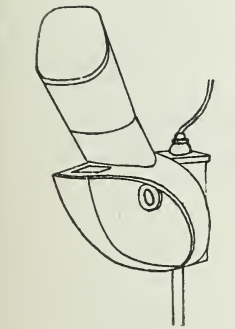
Sunlight Candle

Pyramid-shaped box projecting into the south wall of candling room. 1¼-inch hole to admit light in the end of the box. Paint the inside of the pyramid white, to reflect the light, and paint the outside black. Or a piece of black roofing paper, placed across a window, with a hole the size of half a dollar, will answer the purpose.



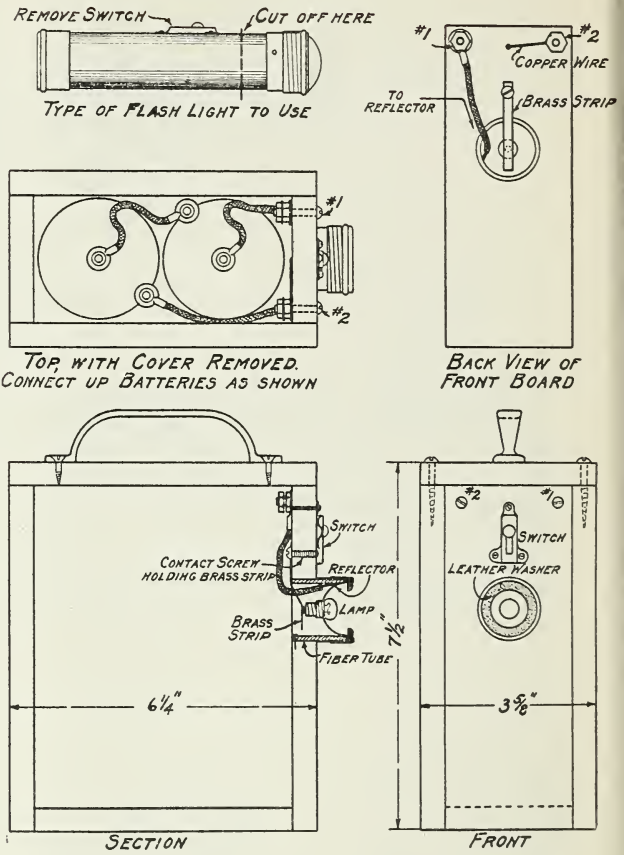
Food Research Laboratory, or Spout Nose, Candle

For details see U. S. Dept. Agr. Bul. 565.



Daylight Candle

Several daylight candles for use with electric, acetylene, or oil lamps are now on the market. These can be used very successfully without a dark room.



Portable Electric Egg Candle

(For details of construction, see page 9)

HOW TO MAKE A PORTABLE ELECTRIC EGG CANDLE

LIST OF MATERIALS

Approximate cost of material, $1.50. Six pieces of ½" lumber as follows:

	Pieces.	Width.	Length.
Ends	2	2⅝"	7"
Bottom	1	2⅝"	5¼"
Top	1	3⅝"	6¼"
Sides	2	6¼"	7"

2 Ordinary dry cells.

1 Battery flash light, fiber cylinder type, 2-cell.

4 Battery connectors.

2 Brass binding posts ¾" long, 2 nuts each.

1 ½" R. H. brass machine screw.

4 1¼" R. H. screws.

4 ¼" R. H. screws.

1 Handle with screws.

1 Leather washer.

1 Short piece copper wire.

CONSTRUCTION

From ½- or ⅜-inch stuff make a neat box to hold two ordinary dry cells and a cover attached by screws and fitted with a handle for carrying. Procure a pocket flash light of the fiber cylinder type, as shown without the small battery. The lamp should work on a 2-cell circuit.

Carefully remove the switch and with a saw cut off the lamp end of the flash light with about ½ inch of the fiber tube. Take out one of the small brass strips inside the tube.

Bore a hole in the front end of the box, about 2½ inches down from the top, so that the fiber tube will fit into it tightly. Secure it with a tack on the inside. In each of the upper corners of the front board place a binding post with double nuts on the inside. Under the first nut of Post 1 put a battery connector. Remove the tip at the opposite end, and after pressing back the insulation, push it through the tube and fold the fine wires over its outer edge, so that when the reflector holding the lamp is put in place they will be in contact with it.

One-half inch up from the top of the tube bore a small hole to take a brass machine screw. This screw should hold the brass strip tightly on the back, while the tip should come just through to the front of the box. Place the switch so that the tip of the screw will be in contact with the sliding spring when it is down. The body of the switch must not touch it. Secure it with 3 small screws. Before putting in the top screw, bore a small hole all the way through, push into it a short piece of copper wire from the inside and then insert the screw. The wire

and this top screw must be in contact. Connect the other end of the copper wire to Post 2, under the first nut. Bend the brass strip so that it bears against the end of the lamp when the reflector is in place.

Insert the leather washer in the threaded cap, and screw it in place. The lens may be discarded.

Place the dry cells in the box, and connect as shown in the diagram. Ordinary bell wire may be used, but the regular green cord battery connectors are preferable, as they are flexible and will not jar loose. A coat of paint or varnish stain adds to the appearance of the candle.

When an egg candle is to perform heavy duty, a box may be made to hold 4 or more dry cells, but the cells must be connected in series multiple, as follows: Place the cells in 2 rows, the zincs and carbons in line. To Post 1 connect all the zincs of the first row. To Post 2 connect all the carbons of the other row. Then connect with short wires the remaining carbons and zincs in pairs. This will give the cells much longer service.